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CLAIMS

[Claim(s)]
[Claim 1] Two or more communication devices share the same communication line, one of said communication devices operates as a master unit, and the remaining plurality operates as a slave unit. Get down, carry out multiple address transmission of the signal, and said master unit sets to the data transmission system to said two or more slave units with which said two or more slave units transmit the going-up signal to said master unit at random. Said two or more slave units go up to coincidence, transmit a signal, and the collision of a signal occurs. It is the resending control approach characterized by for said master unit directing modification of the priority of resending to each of two or more of said slave units periodically, and changing resending spacing of two or more of said slave units when said master unit is not able to receive normally.
[Claim 2] Said master unit is the resending control approach according to claim 1 characterized by directing modification of the priority of resending to each of two or more of said slave units when the going-up signal from said two or more slave units is received.
[Claim 3] Said master unit is the resending control approach according to claim 1 characterized by directing modification of the priority of resending to each of two or more of said slave units with a fixed time interval.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention relates to the resending control approach to which set fixed time amount and a signal is made to resend, when two or more communication devices share the same communication line and it collides with the signal of other equipments on a communication line especially about a data transmission system at the time of signal transmission.

[0002]

[Description of the Prior Art] In order to prevent the re-collision at the time of resending, he is trying for resending spacing to differ with each equipment with this kind of data transmission system, conventionally, although a signal is resent when a signal is transmitted and the collision with the sending signal of other equipments is detected on a communication line.

[0003] For example, the technique of preventing the re-collision at the time of resending is indicated by "JP,61-53841,A", and he is trying for resending spacing of each equipment not to overlap it by determining resending spacing based on the address (ID) of each equipment as an example by resending at intervals of resending of each equipment proper.

[0004] Moreover, although the technique of changing resending spacing to a "JP,3-253126,A official report" according to change of traffic is indicated and resending spacing of each equipment is changed in drawing 1 of this official report, reference is not made about the technique of making it resending spacing not overlap.

[0005]

[Problem(s) to be Solved by the Invention] By the conventional resending control approach, since resending of specific equipment became early since **** [the merits and demerits of resending spacing of each equipment], and resending of other equipments became slow, there was a trouble that the throughput of the equipment which became late got worse.

[0006]

[Means for Solving the Problem] In order to solve the trouble mentioned above, the resending control approach by this invention One of two or more communication devices operates as a master unit, and the remaining communication devices operate as a slave unit. When a master unit directs modification of the priority of resending to each slave unit and changes resending spacing of a slave unit into it periodically, the specific slave unit of resending spacing is always short, and another slave unit prevents that resending spacing always becomes long.

[0007]

[Example] Next, this invention is explained with reference to a drawing. In this example, the signal of "going down" and the direction of a slave unit to a master unit is called "going up" for the signal of the direction of a slave unit from a master unit.

[0008] Drawing 1 is the block diagram of the communication device of the data transmission system in one example of this invention. Reference of drawing 1 constitutes a master unit 0 from the transmitting section T0 which transmits data, a receive section R0 which receives data, and the communications control section CC 0 which controls the transmitting section T0 and a receive section R0 and the control section C0 which performs high order layer processing of the communications control section CC 0. Slave units 1 and 2 -- All n is the same configurations and the component

is the same as that of a master unit 0. The transmitting section T0 of a master unit 0 is slave units 1 and 2. -- Parallel connection of the receive section R0 is carried out to the receive section R1 of n, and 2 --n with the transmitting section T1 and 2 --n again.

[0009] Drawing 2 is a flow chart showing actuation of the transmission-control section CC 0 of a master unit 0. In drawing 2 , x is a variable which stores the highest slave device number of the priority of resending.

[0010] Drawing 3 is slave units 1 and 2. -- It is the transmission-control section 1 and CC 2 of n. -- It is a flow chart showing actuation of n. if a is the device number of a self-slave unit and it becomes slave unit 1 in drawing 3 -- a= 1 -- it will be a= 2 if it becomes slave unit 2. Ta is the variable which stores a peculiar resending spacing timer value for every slave unit, and if it becomes slave unit 1, since it is a= 1, it will call it T1. y is a multiplier showing time difference when the priority of resending leaves one, and if it becomes for y= 1 second, and the priority of resending is separated one, it means that spacing of resending shifts for 1 second.

[0011] Drawing 4 is a master unit 0 and slave units 1 and 2. -- It is the SHIKESU Fig. showing an example of the sequence of the data transmission between n.

[0012] Next, resending control is explained with reference to drawing 1 , drawing 2 , drawing 3 , and drawing 4 . First, the communications control section CC 0 of a master unit 0 initializes to 1 the variable x which stores the highest slave device number of the priority of resending (drawing 2 , step S201). Next, they are all the slave units 1 and 2 about the notice (x) signal of resending priority. -- Multiple address transmission is carried out at n (drawing 2 , step S202 and drawing 4 , step S401). Since the priority of resending notifies the number of the highest slave unit and it is x= 1 in this case, a slave unit 1 has the highest priority, and this notice (x) signal of resending priority is a slave unit 2. -- It means that priority becomes low at the order of n. Moreover, in the case of x= 2, it is 2 and 3 to order with high priority. -- In the case of n, 1, and x= 3, it is 3 and 4 to order with high priority. -- n, and 1, 2 and priority circulate. Slave units 1 and 2 which received the notice (x) signal of resending priority -- Step S301 of drawing 3 is set to Y (Yes), and n calculates resending spacing at the following steps S302, S303, and S304. Since it is a= 1 and x= 1 in the case of a slave unit 1, step S302 serves as N (No), and is set to T1=1y (step S304). Similarly, it becomes T2=2 y--Tn=ny. Next, if the communications control section CC 0 starts the timer T0 for resending the notice signal of resending priority (step S203) and a timer T0 carries out a time-out (Y of step S204), it will return to step S202 and will resend the notice signal of resending priority (step S402).

[0013] Then, processing of the communications control sections CC1 and CC2 when slave units 1 and 2 transmit data to coincidence is explained. With a slave unit 1, when a control section C1 transmits data, transmission of data is required of the communications control section CC 1. Then, in the communications control section CC 1, step S301 serves as N, step S305 is served as to Y, and data are transmitted (step S306,

step S403). A slave unit 2 transmits data similarly (step S404). Here, since two equipments transmitted data to one shared communication line at coincidence, two signals cannot interfere mutually on a communication line, and it cannot receive normally in a master unit 0. Therefore, since slave units 1 and 2 do not receive the reply signal expected from the master unit 0 to the transmitted data, it judges that the transmit data collided with other slave units (Y of step S308), and after waiting for a slave unit 1 for T1=1 y seconds (step S309), it resends data (step S306, step S405). After waiting for a slave unit 2 for T2=2 y seconds (step S309), it resends data (step S306, step S407). At the time of resending, since the transmit timing of these two signals has shifted, with a master unit 0, the signal is received normally (Y of step S205), processing according to the signal is performed, it gets down and a reply signal is transmitted (step S206, step S406, step S408). Therefore, a collision is not detected in slave units 1 and 2 (N of step S308). Moreover, slave units 1 and 2 ·· The communications control section 1 and CC 2 of n ·· n is the notice signal reception of resending priority and the control sections 1 and 2 which were mentioned above. ·· Although communications processing other than the uphill data Request to Send from n is also performed, since it is unrelated to this invention, it omits (step S307).

[0014] Next, in a master unit 0, Variable x is carried out +one, it is made x= 2 (step S207), the notice (x) signal of resending priority is transmitted (step S202, step S409), and resending priority is 2 and 3 to all slave units. -- It notifies having become n and the order of 1. Slave units 1 and 2 which received the notice (x) signal of resending priority ·· n calculates resending spacing of each equipment like the case of step S401, and asks for T1=ny, T2=1y, --Tn=(n-1) y.

[0015] Moreover, when slave units 1 and 2 transmit data to coincidence and collide with it, it is the same processing as (step S410, step S411), and the above-mentioned, and a slave unit 2 resends after [of T2=1] y seconds (step S412 -> step S413), and a slave unit 1 resends in a T1=ny second (step S414 -> step S415).

[0016] It can equalize without the time amount to resending inclining with equipment by changing resending spacing of each slave unit periodically, as explained above.

[0017] In addition, in this example, although the communications control section CC 0 of a master unit 0 changed resending priority ignited by reception of uphill data, it is good also considering another events, such as changing resending priority with a fixed time interval, as an opportunity.

[0018]

[Effect of the Invention] Since it can equalize according to this invention, without the time amount to resending inclining with equipment by directing modification of the priority of resending to two or more slave units periodically from a master unit, and changing resending spacing of a slave unit as explained above, resending spacing of specific equipment is always long, and it can prevent that a throughput gets worse.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram of the communication device of the data transmission system in one example of this invention.

[Drawing 2] It is a flow chart showing actuation of the transmission-control section CC 0 of the master unit 0 shown in drawing 1 .

[Drawing 3] Slave units 1 and 2 shown in drawing 1 -- The transmission-control section 1 and CC 2 of n -- It is a flow chart showing actuation of n.

[Drawing 4] The master unit 0 and slave units 1 and 2 which are shown in drawing 1 -- It is the sequence diagram showing an example of the sequence of the data transmission between n.

[Description of Notations]

0 Master Unit

1 Two ·· n Slave unit

C0, C1, C2 -- Cn Control section

CC0, CC1, CC2 -- CCn Communications control section

T0, T1, T2 -- Tn Transmitting section

R0, R1, R2 -- Rn Receive section

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CLAIMS

[Claim(s)]
[Claim 1] A client logs in to a server and the client accesses to a server. If the access is completed, will begin measurement with a timer means, and if the above-mentioned client accesses again to the above-mentioned server during the timer measurement, the above-mentioned timer means will be reset. The log in management method in the client which will be characterized by making the above-mentioned client log out if the measurement value of the above-mentioned timer means reaches the 1st setup time while the above-mentioned client has not accessed again to the above-mentioned server.
[Claim 2] If the measurement value of the above-mentioned timer means reaches the 1st setup time of the above, measurement by the above-mentioned timer means will be begun with the above-mentioned log out. When alter operation is performed in the above-mentioned client during the measurement, stop measurement of the above-mentioned timer and the above-mentioned client is made to log in again. The log in management method in the client according to claim 1 which will be characterized by making the above-mentioned client log in again if the measurement value of a timer means reaches the 2nd setup time while there has been no alter operation in the above-mentioned client.
[Claim 3] The log in management method in the client which will be characterized by making the above-mentioned client log out if log in to a server from a client, the client accesses to a server, the access is completed and the registered program to be accessed with a server becomes less working.
[Claim 4] The log in management method in the client which will be characterized by making the above-mentioned client log in again if alter operation is supervised and the registered program to be accessed with a server operates during the monitor in being in the state of a log out.
[Claim 5] The log in management method in the server with which the idle time is characterized by making the longest client log out among the clients to which the above-mentioned idle state reached the predetermined setup time when there is a log in demand from a new client, after [to which it logged in] it supervised the idle state for

every client and the number of log ins has reached the maximum number.

[Claim 6] The client carry out having had the control means which controls in a log in to the above-mentioned server by input means perform the input for logging in to a server, communications control means connect with the above-mentioned server, 1st timer means start after access with the above-mentioned server is completed during a log in, and the above-mentioned input means, a log out, and a log out when the timer means of the above 1st reaches the predetermined setup time as the description.

[Claim 7] It is the client according to claim 6 which it has further 2nd timer means to start when the timer means of the above 1st reaches the 1st setup time of the above, and the 2nd setup time for the timer means of the above 2nd is memorized by the above-mentioned storage means, and is characterized by the above-mentioned control means performing log in processing again if the timer means of the above 2nd reaches the 2nd setup time of the above.

[Claim 8] A communications control means to connect according to two or more clients and an individual, and a timer means to start after access is completed while the above-mentioned client logs in, and to measure the time amount for every client, A storage means to memorize the last access time of day with the above-mentioned client, and the 1st setup time of the above-mentioned timer means for every above-mentioned client, The log in of the above-mentioned client by the demand from the above-mentioned client, and a log out, As opposed to the log in demand from the client to which a log out when the above-mentioned timer means reaches the 1st setup time of the above is controlled, and it does not log in when the number of clients which can log in is full The server characterized by equipping the measurement time amount of the above-mentioned timer means with the control means to which make the client under log in which reached the 1st setup time of the above log out compulsorily, and the client under log in demand is made to log in newly.

[Claim 9] The function which measures the time amount from the last access of each above-mentioned client for every client when are used in a computer and each client logged in and accesses to a server, The function which the client is made to log off when there is a client to which the above-mentioned measurement time amount from the last access reached the 1st time amount set up beforehand, The storage with which the program code for making it carry out to the aforementioned computer was memorized in the format in which the readout of said computer is possible.

[Claim 10] The storage according to claim 9 with which the program code for making the function to which the client is made to log in again perform to said computer when each client reaches and logged out in the 1st setup time of the above and there are a function which measures the time amount from the log out for every client, and a client to which the above-mentioned measurement time amount from the above-mentioned log out reached the 2nd set-up time amount was memorized in the format in which the readout of said computer is possible.

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